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Effectiveness of Executive Functioning Interventions Among Homeless Elementary Aged Students

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Warmack, J. L., Jessen, A. C., & Koopmeiners, T. A., 2022

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Focus Question

To what degree does promoting executive functioning skills through occupational therapy interventions for elementary-aged children who are homeless influence their academic success?

Clinical Scenario

Homelessness is an important and prevalent issue among elementary-aged students. Starting in kindergarten, rates of homelessness are evenly distributed among grades (National Center for Homeless Education [NCHE], 2021). During the school year of 2019-20, public schools identified 1,280,886 students experiencing homelessness (NCHE, 2021). This represented 2.5% of all students enrolled in public schools. NCHE (2021) described how the rates of homelessness differ between groups of students.

Hispanic and Latino students accounted for 28% of the overall student body but 38% of students experiencing homelessness; Black and African American students accounted for 15% of the overall student body but 27% of students experiencing homelessness. While White students accounted for 46% of all students enrolled in public schools, they represent 26% of students experiencing homelessness (p. 14).

For this critical appraisal topic (CAT) paper, elementary-aged students were chosen as the population of interest due to the limited resources and knowledge available to the population regarding executive functioning skills and academic success.

Homelessness is defined as a severe form of residential instability (Fantuzzo et al., 2012). Individuals often reside in an outdoor location and receive services from mobile food vans, shelters, and soup kitchens (Census Bureau, 2020). Homeless youth tend to sleep in locations such as doorways, heating vents, ATM enclosures, bus stops, and railroad tunnels (Oliveira & Burke, 2009). With homeless youth spending most of their time unsupervised, they may also seek shelter in abandoned buildings or makeshift shelters in outdoor parks, under bridges, or on rooftops (Oliveira & Burke, 2009).

The cultural norms and values of individuals experiencing homelessness vary greatly from those in a stable living environment, as one's environment and culture can provide a place for development and growth or foster danger and damage (Baptiste, 2017; Oliveira & Burke, 2009). Culture has been defined as a set of guidelines that individuals inherit as members of a particular society (Helman, 2000). Homeless children often feel vulnerable, lost, and alone and feel as if they no longer fit into a particular society (Oliveira & Burke, 2009). Furthermore, immigrant children face additional challenges such as language barriers, cultural conflicts, and legal obstacles to seeking help or readily integrating into the culture of the street (Oliveira & Burke, 2009). For those experiencing homelessness, the need for food, clothing, and safe shelter leads to physical and mental health being a deferred priority (Grandisson et al., 2009). Homeless youth are at a higher risk of victimization, substance abuse, infectious diseases, and mental health problems (Barnes et al., 2021). At large, homelessness interferes with healthy youth development in physical, cognitive, sensory, and cultural aspects (Oliveira & Burke, 2009).

In the Person-Environment-Occupation (PEO) Model the focus is on determining the best fit between the person, environment, and occupation (Baptiste, 2017). The model considers the environment to be everything that surrounds an individual including physical, social, institutional, cultural, and virtual characteristics (Baptiste, 2017) The PEO Model is most closely aligned with the focus question when considering a model from which to frame the topic of elementary-aged students who are experiencing homelessness. From the focus question, elementary-aged students and executive functioning skills are considered the personal aspects of



the PEO model, the environmental aspect includes the educational setting and residential instability or homelessness, and education is the occupational focus. Elementary-aged students' diverse home life can influence their executive functioning skills and their ability to perform in the occupation of education (Gultekin et al., 2019). Using the PEO model as a guide for evaluation and interventions, occupational therapists may be able to increase the executive functioning (EF) skills of homeless elementary-aged students to obtain a better fit between their occupation and environment (Baptiste, 2017).

Executive functioning skills considered in this CAT paper include self-regulation, working memory, attention, and time management (Wanger-Fuhs et al., 2014). Executive functioning can be broadly defined as the processes underlying the conscious control of one's thoughts, behaviors, and emotions in goal-directed activity (Piehler et al., 2014). The use of executive functioning skills has been shown to have a positive effect on the likelihood of academic success (Wanger-Fuhs et al., 2014). Additional findings indicate that executive functioning skills may enable children to adapt to classroom demands and learn new skills across academic content areas such as mathematics and language comprehension (Wanger-Fuhs et al., 2014).

Academic success can be defined beyond the traditional measurements such as grades and grade point average (Fantuzzo et al., 2012). For the purpose of this CAT, academic success in the classroom is defined as demonstrating positive executive functioning skills to facilitate participation while learning in the classroom (Fantuzzo et al., 2012).

The impacts of homelessness correlate with damaging outcomes including deficits in executive functioning, social and emotional competence, behavioral regulation, and academic achievement (Lafavor, 2018). Occupational therapists use occupations and activities to enhance executive functioning, influencing the likelihood of clients' academic success in the areas of self-regulation, working memory, attention, and time management (Wanger-Fuhs et al., 2014). In the academic setting, the effects of homelessness in elementary-aged students are emotional, developmental, and behavioral difficulties at school (Gultekin et al., 2019). In addition to logistical and procedural barriers to school access, homeless children also experience physical, developmental, mental health, and educational delays at greater rates than the national norms (Tobin, 2016). Currently, there is little known about the internal and external barriers occupational therapists face in providing services to the homeless population (Van Oss et al., 2020). However, occupational therapists can use their unique expertise to foster positive skills for students to reach their full potential when partaking in the role of a student (Van Oss et al., 2020). Occupational therapists play a critical role in the health promotion of elementary-aged students and recognize the need for services for the homeless population (Van Oss et al., 2020). The Occupational Therapy Code of Ethics (AOTA, 2020) indicated that occupational therapy practitioners have the responsibility to advocate to increase access to health services for individuals in need as an effort to reduce or eliminate health disparities across populations.

Purpose Statement

Elementary-aged children who are homeless face challenges in the areas of self-regulation, working memory, attention, and time management (Wanger-Fuhs et al., 2014). Currently, there is a lack of research on homeless elementary-aged children and the influence occupational therapy can have on their academic success. Specifically, there is no comprehensive source that details the effects of the role of occupational therapy interventions on executive functioning skills such as self-regulation, working memory, attention, and time management for the population of homeless elementary-aged school children. The purpose of this CAT paper was



to determine the effect of occupational therapy interventions that focus on promoting executive functioning skills to influence the likelihood of academic success in elementary-aged school children who are homeless.

Methodology

A literature search was conducted from March 3, 2022, to March 7, 2022. Relevant literature was obtained and reviewed from a combination of databases. Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, Embase, PsychINFO, and Sage Journal were the databases where the searches occurred. When searching, articles were excluded that studied populations outside of adolescents and articles, not in English. The focus question that guided key terms was centered on implications within the population and what interventions/programs are most effective to address the implications. Boolean phrases used to search the databases were: “homeless person”, “infancy”, “child”, “school-aged”, “elementary”, “childhood”, “children” “student”, “education”, “skills”, “coping”, “habits”, “problem”, “homeless”, “housing instability”, “on the streets”, “occupational therapy”, “resources”, “intervention”, “help”, “problem-solving”, “executive functioning” “interventions”. To create search phrases and further define the search, “AND” or “OR” were added between keywords. Three articles were found to further expand on culture.

Types of Articles Reviewed

A total of 42 articles were reviewed and 24 were selected for further review. Of the 24 articles further reviewed, six were level I studies (Gultekin et al., 2020; Hurley et al., 2018; Lafavor, 2018; Piehler et al., 2014; Stargel & Easterbrooks, 2022; Sulkowski & Joyce-Beaulieu, 2014), seven were level III (2010; Barnes, 2020; Garg & Koenig, 2015; McGuire-Schwartz et al., 2015; Synovec et al., 2020; Tobin, 2016; Wanger-Fuhs et al., 2014), one was level IV (Fantuzzo et al., 2012), and five were level NA (Grandisson et al., 2009; Kim et al., 2020; Rodger & Lui, 2008; Oliveira JO, & Burke PJ., 2009; Van Oss et al., 2020). Other resources reviewed included government websites, official American Occupational Therapy Association (AOTA) documents, and reference books (AOTA, 2020; Baptiste, 2020; Census Bureau, 2020; Hellman, 2020; NCHE, 2021).

Synthesis

Theoretical Base

The goal of this CAT paper was to gain an understanding of the underlying effects of homeless in elementary-aged students, executive functioning skills, the role of the environment, and how occupational therapy can be used as an intervention to influence academic success. The CAT paper was conceptualized from an occupational perspective using the model, PEO. The literature provided evidence that a child's early home environment lays the foundation for later development and learning (Gultekin et al., 2020; Stargel & Easterbrooks, 2022). Children experiencing homelessness may be at greater risk of poorer health as well as diminished social and educational outcomes compared to their housed peers (Gultekin et al., 2020; Stargel & Easterbrooks, 2022). Additionally, families reported that focusing on child development was difficult when family basic needs were not being met (Hurley et al., 2018). In order for students to be successful in an academic setting, they need appropriate services and systems in place in which they can have their basic needs met and receive positive opportunities, such as access to food and other academic and emotional services (Havlik et al., 2020). Using the PEO model to develop a holistic understanding of a student's life, occupational therapists can create a positive opportunity to influence academic success by promoting executive functioning skills such as



self-regulation, working memory, attention, and time management to increase overall participation and success within the academic environment (Wanger-Fuhs et al., 2014).

Impact of Homelessness on EF Skills

Homelessness correlates with damaging outcomes including deficits in executive functioning, social and emotional competence, behavioral regulation, and academic achievement (Lafavor, 2018). Stargel and Easterbrooks (2022) conducted a study that examined homeless children's school attendance and stability associated with educational challenges. There is a significant correlation between absenteeism and educational functioning throughout the population of homeless youth (Stargel & Easterbrooks, 2022). Absentee rates range from 25.3% to 50.8% with 60% of homeless children experiencing difficulty with school mobility resulting in frequent absences (Stargel & Easterbrooks, 2022). The literature shows that young children's cognitive development is largely dependent on a stable and consistent learning environment, and disruption in their learning experience can have long-lasting effects on later development (Fantuzzo et.al, 2012). Stability was shown to be essential for homeless children, along with access to consistent service utilization (Stargel & Easterbrooks, 2022). Compared to their peers, homeless students scored significantly lower in mathematics, intelligence quotient (IQ), and reading (Lafor, 2018). Children who have previously resided in homeless shelters show lower school readiness than national norms (Stargel & Easterbrooks, 2022). Additionally, researchers discovered homeless youth were more likely to meet diagnostic criteria for psychiatric, disruptive behaviors (e.g., conduct disorder, oppositional defiant disorder) and mood disorders (e.g., depression, bipolar disorder) compared to non-homeless youth, later in their educational career (Sulkowski & Joyce-Beaulieu, 2014). Overall, children who are homeless or unstably housed will most likely need more support and resources along with interventions to keep them healthy (Gultekin et al., 2020). The population of homeless students still remains a growing national concern and is often neglected by many professionals (Sulkowski & Joyce-Beaulieu, 2014).

Benefits of Occupational Therapy

The goal of occupational therapy in the homeless community is to provide specific interventions for individuals' needs, challenges, strengths, and goals (Van Oss et al., 2020). Occupational therapists influence the homeless population through health promotion and well-being services (Van Oss et al., 2020). A study was conducted to gather information on the needs of homeless students related to health, well-being, community integration, and the development of routines (Van Oss et al., 2020). Based on the findings of homeless elementary aged students, occupational therapy practitioners have a distinct role in intervening with individuals who experience homelessness (Van Oss et al., 2020). Occupational therapy can influence academic success for homeless elementary-aged students through intervention, by increasing academic performance, as well as educational outcomes, restoring life roles and routines, integrating individuals back into the community, and assisting in identifying resources and unmet needs for the homeless population (Van Oss et al., 2020). Currently, there is a lack of evidence pertaining to executive functioning interventions available to the population of elementary-aged students who are homeless. While this information may not be available for the current population, there is more evidence to support executive functioning interventions for all children.

Current Interventions for Executive Functioning

A current intervention used by occupational therapists to increase executive functioning skills is the Cognitive Orientation to (daily) Occupational Performance (CO-OP) (Rodger & Lui, 2008). This intervention's original intent was for individuals with developmental coordination



disorder (DCD). CO-OP includes cognitive interventions, which focus on task performance and client-centered care to promote problem-solving and planning in motor skill development (Rodger & Lui, 2008). Motor planning skills can be directly correlated with the utilization of the EF skills of attention and problem solving (Rodger & Lui, 2008). This intervention also includes domain-specific subtasks of “Attention to Doing”, “Task Specification/Modification”, “Verbal Mnemonics”, “Verbal Rote Script”, “Feel the Movement”, “Body Position”, and “Verbal Guidance” (Rodger & Lui, 2008). Compared to contemporary treatment approaches for children with DCD, CO-OP was a more effective option to increase executive functioning skills (Rodger & Lui, 2008). The CO-OP intervention will need to be further explored before assessing children who experience homelessness as elementary-aged children who are homeless were not included in the original study design (Rodger & Lui, 2008).

The Cognitive-Functional (Cog-Fun) intervention was designed to enhance executive functioning skills in children (Kim et al., 2020). Cog-Fun aims to assist children in creating strategies that allow for increased participation in daily living activities and important occupations (Kim et al., 2020). Executive functioning improvement through Cog-Fun interventions is related to integrating factors associated with intervention principles (Kim et al., 2020). Parent-related factors include (1) setting realistic goals, (2) learning execution strategies in home environments and integrating them into everyday routines, and (3) supporting the use of execution strategies when the child is training and modifying the environment as needed (Kim et al., 2020). Child-related factors include (1) effective acquisition of execution strategies, (2) improvement of performance skills, and (3) increasing self-efficacy (Kim et al., 2020). After 10 sessions of the Cog-Fun interventions program, participants showed improvements in executive functioning, specifically in the areas of working memory, planning and organization, and organization of materials (Kim et al., 2020). The control group for this intervention did not include elementary-aged students who are homeless leading to a bias in study outcomes related to the population intended to be norm-referenced (Kim et al., 2020). The Cog-Fun intervention could be further explored to increase a homeless student’s executive functioning skills such as working memory, planning, and organization (Kim et al., 2020).

Limitations of Services

Due to a lack of knowledge surrounding the population of homeless youth occupational therapists feel unprepared, resulting in unmet needs for the population (Baggett et al., 2010; Lauckner et al., 2006). Additionally, individuals experiencing homelessness often feel stigmatized by healthcare systems and experience substantial barriers to accessing multiple dimensions of health care (Baggett et al., 2010). Inconsistency of school attendance and limited funding from homeless shelters to pay providers results in a lack of access to health care services. (Grandisson et al., 2009). Therefore, many of these individuals do not have the opportunity to take advantage of rehabilitation and preventative healthcare services (Baggett et al., 2010). Lack of access, knowledge, and barriers creates limited services for children experiencing homelessness who would benefit from the occupational therapy services (Baggett et al., 2010).

Summary

Overall, 42 articles were reviewed and 24 were chosen for further review. The articles included topics on homeless youth, academic performance, academic behavior, and executive functioning skills. The following main points were found:



- The impacts of homelessness correlate with damaging outcomes including deficits in executive functioning, social and emotional competence, behavioral regulation, and academic achievement (Lafavor, 2018).
- Occupational therapy can influence academic success for homeless elementary-aged students through intervention, by increasing academic performance, as well as educational outcomes, restoring life roles and routines, integrating individuals back into the community, and assisting in identifying resources and unmet needs for the homeless population (Van Oss et al., 2020).
- Implementing executive functioning interventions early is crucial as homelessness can affect students' cognitive functioning, disruptive behaviors, absenteeism, and educational readiness (Lafor, 2018; Stargel & Easterbrooks, 2022; Sulkowski & Joyce-Beaulieu, 2014).

The aim of researching these topics was to answer the research question and explore the literature surrounding occupational therapy's role in intervention for elementary-aged students who are homeless to improve their academic success through increasing executive functioning skills. A review of the literature indicated there is little research providing evidence to determine the exact role occupational therapists have on homeless youths' executive functioning skills.

Clinical Bottom Line

To what degree does promoting executive functioning skills through occupational therapy interventions for elementary-aged children who are homeless influence their academic success?

At large, homelessness interferes with healthy youth development in physical, cognitive, sensory, and cultural aspects (Oliveira & Burke, 2009). While there is a variety of literature that supports the occupational therapist's role in executive functioning interventions, there is not enough research to definitively demonstrate the effect of occupational therapy intervention on the population of homeless elementary-aged students. To analyze the transactional relationship between the person, environment, and occupation, the PEO model was used to understand the impact of homelessness on elementary-aged students' executive functioning skills (Baptiste, 2017). Various factors of homelessness impact elementary-aged students' academic success. Therefore, it is essential to consider how the environment interacts with personal factors of the individual and occupational performance when developing interventions to enhance executive function skills (Stargel & Easterbrooks, 2022; Sulkowski & Joyce-Beaulieu, 2014). Implementing executive functioning interventions early is crucial as homelessness can affect students' cognitive functioning, disruptive behaviors, absenteeism, and educational readiness (Lafor, 2018; Stargel & Easterbrooks, 2022; Sulkowski & Joyce-Beaulieu, 2014).

After comprehensively researching the area of interest, it was identified that there is an abundance of information regarding how homelessness affects elementary-aged students' executive functioning (EF) skills and academic success (Tobin, 2016). The impacts of homelessness correlate with damaging outcomes including deficits in executive functioning, social and emotional competence, behavioral regulation, and academic achievement (Lafavor, 2018). Research information was found supporting the role of occupational therapy in intervention to enhance executive functioning skills but unfortunately, there is limited information on occupational therapists using these interventions to promote academic success in homeless elementary-aged students (McGuire-Schwartz et al., 2015). In order for students to be successful in an academic setting, they need appropriate services and systems in place where they can have their basic needs met and receive positive opportunities, such as access to food and other academic and emotional services (Havlik et al., 2020). Homeless children often feel



vulnerable, lost, and alone and feel as if they no longer fit into a particular society (Oliveira & Burke, 2009). Furthermore, immigrant children face additional challenges such as language barriers, cultural conflicts, and legal obstacles to seeking help or readily integrating into the culture of the street (Oliveira & Burke, 2009). For those experiencing homelessness, the need for food, clothing, and safe shelter leads to physical and mental health being a deferred priority (Grandisson et al., 2009). While occupational therapists recognize the value of their role in underserved populations, many feel unprepared to fill the role due to a lack of knowledge about the topic of homelessness (Lauckner et al., 2006). Additionally, referrals to other professionals such as social workers, teachers, and school psychologists are shown to be beneficial for students experiencing homelessness (Gultekin et al., 2019).

The literature that has been reviewed and analyzed will be beneficial to guide occupational therapy services within the school system. The role of occupational therapy in the homeless community is to provide specific interventions for individuals' needs, challenges, strengths, and goals (Van Oss et al., 2020). Occupational therapists influence the homeless population through health promotion and well-being services (Van Oss et al., 2020). They look at the influence of an individual's environment and acknowledge barriers to adapt or modify activities for adequate participation (Van Oss et al., 2020).

Current specific intervention programs focus on promoting executive functioning skills among children through creating strategies that allow for increased participation in daily living activities and important occupations (Garg & Koenig, 2015; Kim et al., 2020). Programs such as Cog-Fun and CO-OP aim at assisting children in creating strategies that allow for increased participation in daily living activities and important occupations (Kim et al., 2020; Rodger & Lui, 2008). Executive functioning skills were increased within the Cog-Fun and CO-OP interventions through the use of client-centered tasks and subtasks focused on attention, self-efficiency, goal-specific strategies, and problem-solving skills (Kim et al., 2020; Rodger & Lui, 2008). However, the control group for these interventions did not include elementary-aged students who are homeless leading to a bias in study outcomes related to the population intended to be norm-referenced (Kim et al., 2020; Rodger & Lui, 2008).

Additional interventions may include increasing academic performance and educational outcomes, restoring life roles and routines and integrating individuals back into the community (Van Oss et al., 2020). Since the use of executive functioning skills is shown to have a positive impact on the likelihood of academic success, an intervention aimed at promoting areas of self-regulation, working memory, attention, and time management may be beneficial to an occupational therapist working with elementary-aged students who are homeless (Garg & Koenig, 2015; Kim et al., 2020; Rodger & Lui, 2008).



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